

11. *New Acridiidae from South Africa.*—By K. H. L. KEY,
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(With Plates XIII–XVII and 2 Text-figures.)

Most of the material which forms the basis of the present paper was collected by myself during the years 1928–1931. In the case of *Betiscoides meridionalis* Sjöst., my own material was supplemented by specimens from the collection of the South African Museum, from which the unique type of *Pyrgomorphella rugosa* was also obtained. The two specimens of *P. variegata* are from the British Museum collection. I have to thank the Director and Dr. A. J. Hesse of the South African Museum and Dr. B. P. Uvarov of the British Natural History Museum for permitting me to use this material, and for putting at my disposal all the facilities of the two museums. The Type of *Pyrgomorphella rugosa* has been deposited in the South African Museum, and the Type and allotype of *P. variegata* in the British Museum. All the other Types are in the British Museum, and paratypes in both museums.

CATANTOPINAE.

Genus BETISCOIDES Sjöst.

(Ark. f. Zool. 15, No. 22, 1923, p. 12.)

The material before me includes Sjöstedt's *B. meridionalis* and two new species. These enable us to see the genus in a new light, and Sjöstedt's description is shown to require modification. In particular, the differences mentioned by him between the genera *Betiscoides* and *Betisca* are seen, with one exception, to be inconstant and unreliable, while two characteristic differences are not mentioned by him. I have therefore undertaken a redescription of the genus *Betiscoides* and of *B. meridionalis* in the light of the new material, transferring a number of characters from the generic description to the species.

Body slender or very slender, smooth, apterous.

Antennae more or less tapering, evenly punctured.

Head from above conical; fastigium of vertex produced, poorly or not at all marginated; its surface strongly and evenly convex sideways. A faint median carina is discernible at any rate at the extreme apex of the fastigium. Head in profile nearly straight above; face nearly straight and strongly sloping. Frontal ridge between the antennae compressed, not sulcate, but becoming sulcate lower down; margins of ridge more or less diverging towards the clypeus, either not reaching the clypeus or obsolescent by the time it is reached. Eyes longitudinal, not very prominent from above. Median ocellus very small; lateral ocelli absent.

Pronotum cylindrical, with no true carinae; anterior margin slightly convex, posterior slightly concave. Sides of pronotum flat; lower margin straight or slightly incurved; anterior margin sloping forward, straight or more or less incurved in the lower part; posterior margin nearly straight in the lower part, more or less sloping forward in the upper part. Sulci of pronotum represented only by a short shallow sulcus somewhat behind the middle of the lobes, which does not reach the disk nor the lower margin of the lobe, and one shortly behind the anterior margin of the lobe, which also does not reach the disk.

Prosternal tubercle more or less compressed in a longitudinal direction.

Meso- and metanota and tergites of abdomen traversed by a very fine median longitudinal carina, which may often be traced even on the pronotum as a very fine sulcus or carina. Tympanum absent.

Anterior and middle legs short. Hind femora smooth, almost devoid of hairs, both upper and lower margins widely rounded; no median apical spine. Inner genicular lobes widely rounded, outer somewhat produced and pointed.

Male.—Cerci very small, straight, conical. Supra-anal plate roughly diamond-shaped; the plate is traversed by a curved transverse sulcus, the convex aspect of the curve being directed anteriorly; the basal part of the plate thus divided bears a longitudinal depression. Subgenital plate elongate, convolute, conical.

Female.—Genital valves more or less recurved at the tips, not toothed, provided with hairs on the inside. Supra-anal plate longer than in the male, especially in the apical part; transverse sulcus not so distinct. Subgenital plate flattened, with an apical median triangular projection.

Genotype: *Betiscoides meridionalis* Sjöst.

All known members of the genus are confined to patches of short reeds of the family Restionaceae.

The British Museum collection contains a series of specimens of the genus *Betisca* from various localities in Australia, and these permitted a careful comparison to be made with the *Betiscoides* series. Two characters considered to be characteristic of *Betisca* were found to be variable. These were (1) the lateral depressions of the fastigium, and (2) the hind margin of the pronotum, which is sometimes as much incurved as in *Betiscoides*. On the other hand, a very characteristic feature of *Betisca* is the enlargement of the galeae of the maxillae, which are turned upwards, almost completely covering the labrum, their points reaching to about the clypeus. In this respect *Betisca* resembles *Acanthoxia*, and differs completely from *Betiscoides*, in which the galeae are normal. Further, the apex of the fastigium is always sulcate in *Betisca*, carinate in *Betiscoides*. The characters of the prosternal tubercle, the galea of the maxilla, and the apex of the fastigium thus readily enable the two genera to be separated.

Betiscoides meridionalis Sjöst.

(*Loc. cit.* 1923, p. 14, pl. 2, figs. 8, 9.)

Male (Plate XIII, A, B, C, E).—Body very slender and elongate.

Antennae 24-jointed; distinctly triangular in cross-section; distinctly biserrate; tapering gradually to a fine point; in length subequal to the head and pronotum together.

Head very elongate, about $3\frac{1}{2}$ times its width at the occiput; fastigium of vertex nearly twice the length of an eye; its margin takes the form of a broad, flat, very slightly raised portion of the head extending forwards from each eye, and narrowing, until at the base of the antennae it has become fairly sharp, but little raised; margins straight, converging very gradually to the apex; median carinula faintly discernible only near the apex of the fastigium. Head in profile nearly straight above, face nearly straight and very strongly sloping. Frontal ridge between the antennae projecting somewhat, and then bending upward to meet the fastigium, so that in profile the head appears to be more or less obliquely truncate; margins of frontal ridge only slightly diverging and obsolescent shortly below the ocellus; lateral facial carinae ill-defined, and obsolescent above about the middle of the eyes. Eyes elongate-oval, almost oblong, about $1\frac{3}{4}$ times as long as their maximum width;

their surface almost flat; the lower margin straight, and the upper margin almost so; both anterior and posterior ends widely rounded, the latter somewhat wider than the former.

Hind margin of pronotum noticeably concave. Sides of pronotum with the lower margin almost straight; anterior margin sloping well forward, incurved; posterior margin straight below, sloping forward above; anterior lower angle slightly more than 90° , widely rounded; posterior lower angle 90° , rounded.

Prosternal tubercle strongly laminate, with its length (measured along the cephalo-caudal axis) many times its width in the middle, where it is very thin, its anterior end strongly swollen and rather more downwardly projecting than the rest of the tubercle, so that the lower surface of the tubercle is not quite level, but slopes down gently from the anterior to the posterior end; posterior end very slightly swollen.

Hind legs only just reaching the tip of the abdomen. Hind femora about seven times as long as their maximum breadth. Hind tibiae with 11 outer and 15 inner spines. Hind tarsi rather less than a third the length of the tibiae.

Apex of abdomen slightly upturned. Supra-anal plate with the basal part one-third to one-half the length of the apical part; the longitudinal depression well marked, straight, and narrow; apical part roughly triangular, but with the apex much attenuated and the sides somewhat incurved; a shallow depression in the apical angle.

Subgenital plate extremely elongate and acutely pointed, about three times as long (measured from tip of anal plate to tip of subgenital plate) as the supra-anal plate. Lower margin slightly convex at the base; upper margin nearly straight.

General coloration purple-brown, somewhat darker at the sides than above. A pale yellow stripe extends from the base of each eye across the cheeks, along the lower margin of the pronotum, and across the pleurae to the base of the hind femur. Head, eyes, antennae, and abdomen purplish brown, subgenital plate somewhat paler than the rest and greenish at the tip; fore and middle tibiae and tarsi greenish; hind femora greenish brown outside, pale green inside; hind tibiae pale brownish above, dark underneath; spines and spurs pale with black tips.

Female.—Larger than the male. Antennae not quite as long as the head and pronotum together; head about three times as long as its width at the occiput; head in profile very slightly concave above.

Eyes, relatively to the size of the head, smaller than in the male. Lower margin of side of pronotum distinctly incurved; anterior margin also strongly incurved; anterior and posterior angles each about 90° and widely rounded. Hind tibiae with 11-12 outer and 15-16 inner spines. Genital valves very feebly curved.

General coloration pale green, faintly tinged with brown on the margins of the fastigium, bases of antennae, abdomen, and knees. Eyes dark; fore and middle legs and tip of abdomen bright green; hind legs green, tibial spines and spurs black-tipped. No trace of a pale stripe extending back from the eye.

Measurements :

	Male.	Female.
	mm.	mm.
Body	37.5	42.5
Pronotum	3.0	3.8
Hind femur	10.5	12.5
Antenna	11.0	10.5
Head	6.5	7.5
Subgenital plate	7.0	..

Described from 28 males and 18 females. The two specimens selected for description are both from the Cape Flats, Cape Peninsula, December 1930 (K. Key). The remainder are from the following localities: Table Mountain, Cape Peninsula, 3500 ft. (16 males, 4 females); "Cape Town" (3 females); other parts of the Cape Peninsula (6 males, 5 females); Elgin, Cape Province (2 males); near Hermanus, Caledon Division, Cape Province (1 male); Paarl Road, Cape Province (1 male); Tradouw Pass, Swellendam District, Cape Province (1 male, 2 females); Great Winterhoek, Tulbagh, Cape Province, 4500 ft. (1 female); Steenbras River, Sir Lowry Pass, Cape Province (2 females).

Dates, where given, fall within the period November to May.

In form the species is very variable. The specimens from the Cape Flats represent the extreme of elongation, the head being narrow and long, especially the fastigium, and the antennae and subgenital plate also very long. The specimens from Table Mountain (Plate XIII, D) and all the other mountainous localities are more robust, the head being broader, and the eyes, owing to the relatively shorter fastigium, set further forward. The two extremes are united, however, by a complete series of forms, those from Hermanus, Elgin, and Paarl Road being intermediate conditions. There is also a great variation in size.

In colour the males are relatively constant, being always dark

with a pronounced lateral stripe backwards from the eye, and the hind femora usually green or greenish. The females, however, are extremely variable, all kinds of colour combinations being found, and many, like the specimen described, are of a more or less uniform colour throughout. The lateral stripe may be very well marked, but is usually much less so than in the male, and often quite absent.

Betiscooides sjostedti sp. n.

Male (Type) (Plate XIV).—Much less elongate and more robust than the genotype.

Antennae 21-jointed, not biserrate, slightly flattened above, hardly tapering, not finely pointed, in length subequal to the head.

Head from above about $1\frac{2}{3}$ as long as its breadth at the occiput; fastigium about $\frac{2}{3}$ the length of an eye; the margins well raised but obtuse, narrowing from the anterior margin of the eye forwards, straight; apex of fastigium acute; median carinula discernible on the fastigium. Head in profile very slightly convex above, face nearly straight. Frontal ridge between the antennae hardly projecting at all, the apex of the head appearing sharply pointed in profile; margins of ridge fairly distinct in the sulcate portion and for a short distance below the ocellus, faintly discernible right to the clypeus. Lateral facial carinae straight, distinct throughout. Eyes ovate, about $1\frac{3}{4}$ times as long as their maximal width, the surface somewhat convex; both margins somewhat curved, the upper more so than the lower.

Hind margin of pronotum very slightly concave. Sides of pronotum with the lower margin straight, dipping slightly in front; anterior margin sloping forward, somewhat incurved in the lower part; posterior margin practically straight; anterior and posterior lower angles about 90° , rounded.

Prosternal tubercle slightly laminate, about twice as long as broad, its margins and angles rounded; the anterior end little broader than the posterior; lower surface level.

Hind legs reaching the tip of abdomen or just beyond. Hind femora fairly robust, about $4\frac{1}{2}$ times as long as their maximal width; hind tibiae with 10–11 outer and 11–12 inner spines. Hind tarsi about a third the length of the tibiae.

Apex of abdomen slightly upturned. Supra-anal plate with the basal part about half the length of the apical part; the longitudinal depression indistinct; the apical part of the plate shaped like an

equilateral triangle with the base curved and the sides straight; apical angle rounded; no depression in the apical angle.

Subgenital plate (measured from the apex of the supra-anal plate) about equal in length to the anal plate; comparatively bluntly pointed; lower margin slightly convex, upper margin straight, convex at the base; apex rounded.

General coloration deep purple-brown, slightly paler above than at the sides. Head, antennae, fore and middle legs the same colour as the rest of the body. Eyes very dark. Hind femora very dark, both inside and outside, except the carinae and knees, which are fairly pale. Hind tibiae very dark on the lower side, spines and spurs black-tipped. Subgenital plate not as dark as the rest of the abdomen. Lateral stripe present but not very clear.

Female (Allotype).—Larger than the male. Fastigium about as long as an eye. Sides of pronotum with the lower margin straight; anterior margin sloping forward, only very slightly incurved; posterior margin slightly incurved, sloping forward in the upper part. Anterior lower angle more than 90° , posterior lower angle 90° , both rounded. Hind tibiae with 9–10 outer spines, 11–12 inner. Genital valves more strongly curved than in the genotype.

General coloration similar to, but slightly less dark than, that of the male. Hind femora, both outside and inside, paler than the rest of the body; hind tibiae darker apically than basally.

Measurements :

	Male.	Female.
	mm.	mm.
Body	22.5	29.8
Pronotum	2.7	3.8
Hind femur	7.5	9.5
Antenna	4.5	4.5
Head	4.0	4.5
Subgenital plate	2.5	..

Described from 6 males and 3 females from Table Mountain, December 1929–30 (K. Key). There is practically no variation in form in these specimens. All are of a more or less uniformly dark colour, except one male, which is olive-green above. The species occurs on the top of Table Mountain in the same patches of reeds as *B. meridionalis*, yet no intermediate forms occur.

Betiscoides parva sp. n.

In form resembling *B. sjostedti* much more closely than the genotype, but readily separable from both the other species on account of its much smaller size, as well as by other good characters.

Male (Type) (Plate XV).—Antennae 21-jointed, practically filiform, slightly tapering, reaching nearly to the hind margin of the pronotum.

Head from above about $1\frac{2}{3}$ as long as its breadth at the occiput; fastigium about half the length of an eye; margins less obtuse than in *B. sjostedti*, somewhat curved; apex not as acute as in *B. sjostedti*; median carinula discernible on the fastigium. Head in profile slightly convex above, face nearly straight. Margins of fastigium in profile somewhat arched, so that the apex of the head in profile is fairly widely rounded. Frontal ridge between the antennae somewhat projecting; margins of ridge fairly distinct in the sulcate portion and for a short distance below the ocellus, discernible right to the clypeus. Lateral facial carinae straight, distinct throughout. Eyes large, fairly prominent, ovate, about $1\frac{1}{2}$ times as long as their maximal width, their surface strongly convex; both margins curved, the upper strongly so. A low, obtuse, pale, callous ridge starts on the upper margin of each eye, follows the margin round for a short distance, and then traverses the side of the occiput in a longitudinal direction, and continues as a slightly incurved lateral carina along the pronotum, losing itself after a while in the abdomen.

Hind margin of pronotum very slightly concave. Sides of pronotum with the lower margin straight; both anterior and posterior margins sloping forward and slightly incurved in the lower part; anterior lower angle slightly more than 90° , rounded; posterior lower angle 90° , rounded.

Prosternal tubercle slightly laminate, 2-3 times as long as broad, its margins and angles rounded; somewhat broader and considerably higher at the anterior end, so that it slopes strongly downwards from the anterior to the posterior end.

Hind legs reaching beyond the tip of the abdomen. Hind femora fairly robust, about four times as long as their maximal width; hind tibiae with 9 outer and 11 inner spines. Hind tarsi nearly half the length of the tibiae.

Apex of abdomen strongly upturned, making an angle of about 90° with the long axis. Supra-anal plate with the basal part more than half the length of the apical part; the longitudinal depression short

and broad, but deep; the apical part of the plate with the base curved and the sides straight; apical angle rounded; no depression in the apical angle.

Subgenital plate (measured as in the previous species) subequal to the anal plate, comparatively bluntly pointed, with the apex rounded; both upper and lower margins slightly convex.

General coloration plum, with the upper surface of the head, thorax, and abdomen, within the callous carinae, pale and silvery. A darker longitudinal stripe extends from the front of the head backwards along the central ridge of the body. The lateral stripe backwards from the base of the eye is silvery, and extends a short way round the lower hind corner of the eye as a somewhat raised callous ridge. The stripe does not reach the hind femur. Antennae plum; eyes pale; hind femora very pale; hind tibiae somewhat pale above, dark beneath.

Female (Allotype).—Larger than the male. Antennae shorter than those of the male, reaching only to about the middle of the pronotum. Head in profile nearly straight above; face straight. Eyes relatively smaller than in the male. Lower margin of sides of pronotum incurved in the anterior part; anterior and posterior margins almost straight; anterior angle about 90°, posterior a little more than 90°; angles rounded. Prosternal tubercle shorter and somewhat less sloping than in the male. Hind tibiae with 10 outer and 13 inner spines. Genital valves more strongly curved than in the genotype.

Sides of body deep plum, top of body pale yellow-green, with only a trace of the darker central stripe; antennae plum; cheeks yellow-green, frontal ridge plum, rest of face yellow-green tinged with plum; eyes brownish; fore and middle legs green in the femur, becoming plum in the tibia and tarsus. Hind femora yellow-green, paler inside than outside; hind tibiae green at the base, becoming plum at the apex; tarsi plum; spines and spurs black-tipped; genital valves green.

Measurements :

	Male.	Female.
	mm.	mm.
Body	15.0	18.5
Pronotum	1.5	2.0
Hind femur.	5.5	6.5
Antenna	4.3	4.0
Head	2.5	3.0
Subgenital plate	1.5	..

Described from 9 males and 8 females collected by the author, the Type and Allotype from the Cape Peninsula, Cape Province, December 1930; 1 male paratype from near Hermanus, Cape Province, January 1931; the rest from Cape Peninsula, 1928-30. The male from Hermanus has a very slightly longer head and subgenital plate, but on the whole the species is fairly constant in its morphological features. In colour both males and females are exceedingly variable, but the females show no tendency to a uniform colour as in *B. meridionalis*.

A fairly homogeneous series of specimens collected by myself from Ceres, Cape Province, resemble *B. sjostedti*, but are more elongated. Other isolated specimens from various localities appear to differ slightly from the three species described above. The genus has every appearance of being a difficult one, and much more extensive collecting will be necessary before the status of these specimens can be determined.

FRONTIFISSIA nov. gen.

This interesting new genus belongs to the group including the three genera *Kabulia*,* Ramme; *Eurynotacris*,† Ramme; and *Lyrotylus*,‡ Uv. The genotype is smaller than any of the other species of the group, and differs in its vivid coloration, but especially in the structure of the fastigium, which is unlike any of the others, but nearest to *Eurynotacris*. The pronotum and femora, on the other hand, are least like *Eurynotacris*. The front of the head is nearest to *Kabulia*.

Frontifissia is the first representative of this peculiar group to be found in Africa.

Fairly small, but robust (Plate XVI and text-figs. 1 and 2); body pilose, especially in the male.

Antennae fairly short and thick, filiform. Head from above short, little exserted; both occiput and fastigium punctured; fastigium flat, moderately sloping; more so in the male than in the female; distinctly marginated, roughly diamond-shaped, transverse; the lateral angles acute, the anterior margin with a V-shaped median emargination produced by the deep sulcus of the frontal ridge cutting into the apex of the fastigium, which is not roundly continuous with the frontal ridge, but meets it at an obtuse, but quite obvious,

* Deutsch. Entomol. Ztschr., pp. 299-302, 1928.

† Mitt. Zool. Mus. Berlin, xvi, p. 935, 1931.

‡ Journ. Bombay Nat. Hist. Soc., xxix, No. 3, 1923.

angle; temporal foveolae absent, median carina distinctly traceable right along the head, or obsolete. Face in profile somewhat sloping, frontal ridge straight or very slightly incurved, except at the base, where it bends up to meet the fastigium. Frontal ridge broad, more than half the breadth of the lateral frontal areas, strongly concave, with the margins well raised, especially above the ocellus, subparallel below the ocellus, more or less widening at the ocellus or just above it, and gradually converging towards the fastigium; frontal ridge, where it meets the fastigium, about half its breadth below the ocellus. Lateral facial keels well raised, subparallel to the frontal ridge, straight, or more or less curved forwards, reaching the fastigium. Subocular sulcus more or less distinct, straight or somewhat curved. Cheeks and front punctured. Eyes large, prominent from above; separated, in the male, by a distance subequal to the breadth of the frontal ridge at the ocellus, in the female by a greater distance; viewed laterally, more or less oval, the anterior margin tending to be straight, especially in the female; viewed from in front, curved.

Pronotum tectiform, widening from anterior to posterior end, slightly in the male, strongly in the female; anterior margin convex, posterior margin widely emarginate; median carina low, thick; lateral carinae obsolescent or indicated on each side by two very slightly raised regions only: an anterior one, not reaching the first transverse sulcus; and a posterior one, sloping backwards and inwards between the second and third sulci. In the female these areas may be broad and callous; first transverse sulcus obsolescent in the female, at any rate on the disk, bending horizontally forward on the lobe; second and third transverse sulci nearly straight on the disk, bending somewhat forwards on the lateral lobes, the third completely intersecting the median carina, the second not. Metazona about one-third the length of the prozona (measured along the median carina). Anterior margin of lateral pronotal lobes slightly forward-sloping, slightly incurved; lower margin curved, first sloping downward, then level; hind margin straight as far as the shoulder, sloping at an angle of about 45° , thickened, raised, and callous; anterior lower angle obtuse, rounded; posterior lower angle obtuse, very widely rounded. There is a well-marked vertical sulcus shortly behind the anterior margin of the lateral lobe, which follows the line of the anterior margin, not reaching the disk. Whole of pronotum coarsely punctured, especially on the disk.

Part of mesonotum visible behind pronotum; mesonotum and metanotum similar to the abdominal terga, but more coarsely punctured.

Prosternal tubercle straight, conical. Mesosternal lobes with the inner margin straight, inner angles obtuse, rounded; mesosternal interspace in the male subquadrate, subequal to the lobes in width; in the female slightly transverse, slightly wider than the lobes. Metasternal lobes with the inner margin straight, inner angles very obtuse, rounded; metasternal interspace trapezoidal, in the male a quarter or less of the width of the lobes, in the female about half the width of the lobes and narrower than the mesosternal interspace.

Elytra lateral, lobe-like, covering well-developed tympana. Wings absent.

Anterior and middle tibiae with a few spines. Pulvilli large. Hind femora just reaching, or not quite reaching, the tip of the abdomen in the female, reaching well beyond it in the male; the upper and lower margins slightly, and about equally, curved; upper median carina not very pronounced, serrulate; lateral carina strong, slightly serrulate; externo-median area flat; outer and inner genicular lobes similar, rounded apically. Hind tibiae, both from above and to a lesser degree from the side, curved, with a swelling near the base; tibial spines not constant, about 7-8 outside, 9-11 inside; inner apical spine present, outer absent. Inner spurs much longer than the outer.

Abdomen only very lightly punctured, with a broad, low, callous, median keel.

Male.—Supra-anal plate slightly transverse; divided, somewhat anterior to the middle, into an apical and a basal part by a well-raised transverse carina; the basal part traversed longitudinally by a deep broad sulcus with its margins well raised, which partly interrupts the transverse carina, and is continued as a fine indistinct sulcus in the apical part of the plate; apical part more or less depressed on either side of the median sulcus; apical angles rounded; apical margin with a slight median emargination. Cerci long, laterally compressed, strongly attenuate apically, the apical third, seen from above, bent slightly inwards, reaching the apex of the supra-anal plate or just beyond. Subgenital plate short, conical.

Female.—Supra-anal plate about twice as long as broad, the apical part shorter than the basal, and indistinctly separated from it by a fine transverse sulcus. Longitudinal sulcus well marked throughout, though more so in the basal than in the apical part. Genital valves long, strongly curved, not denticulate. Cerci short, very broad at the base, attenuate apically.

Genotype : *Frontifissia elegans* sp. n.

Frontifissia elegans sp. n.

Female (Type) (Plate XVI and Text-fig. 1). — When fresh a remarkably striking insect. General coloration deep green, with numerous silvery-white spots and markings. Head green, with several indistinct whitish markings on the face; median carina on the occiput white; eyes and antennae purple-brown; a white stripe sloping down from the eye across the cheek, and one passing straight back from the eye to connect with a short white line on the shoulder of the pronotum.

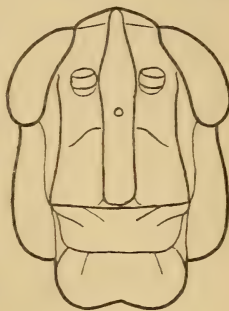


FIG. 1.

Pronotum green, with the median line white, broadening in the neighbourhood of the second transverse sulcus; a large oblique white mark on the shoulder, extending from just behind the second sulcus to just behind the third sulcus, and below the large mark, on the lobe just behind the second sulcus, a smaller white spot; a white line, situated on the lateral lobe at a level slightly above the base of the clypeus, connects the second sulcus to the anterior margin; region of the lobe between the anterior margin and the second sulcus blackish for a short distance above this line; sloping hind margin of pronotal lobes bearing a white stripe, bounded dorsally by a dark purplish stripe of about the same width.

Mesonotum without markings, except for the pale median carina. Metanotum with two white patches in the same relative positions as those occurring on the abdominal terga.

Elytra green, darker at the base than at the apex; lower margin with a white stripe, upper margin white at the base.

Anterior and middle legs green. An irregular white mark on the pleuron just above the insertion of the middle coxa, and another in the corresponding position above the hind coxa. Hind legs pale green throughout (the interno-median area of the femur is discoloured); a row of black dots, which are of the nature of obtuse teeth, on the upper external and internal carinae, but not on the lower internal and external carinae, which are whitish, especially the former.

Abdomen dark green, the median keel dirty white; two rows of large white spots on each side of the abdomen, each row consisting of one spot on each tergite; the upper row is in line with the large oblique spot on the shoulder of the pronotum; the lower row lies

just above the lower margins of the tergites; on the under side of the abdomen there are also two rows of white spots running along the sides of the sternites. The spots on the sternites, and those of the lower row on the tergites, are triangular in shape, the apex being directed posteriorly. Sternum pale green, the lateral margins white; metasternal interspace, and a short line forwards from it, and also a line forwards from the mesosternal interspace, white. Genital valves pale green, the tips black.

Male (Allotype) (Text-fig. 2).—About half the size of the female and much less striking. General coloration green. Top of head

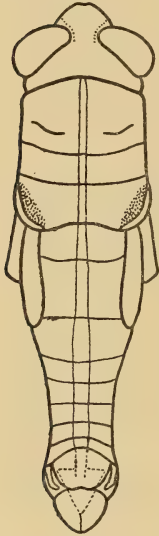


FIG. 2.

green, except the fastigium, which is dark; frontal ridge and lateral frontal areas red-brown; cheeks green; antennae deep purple-brown; eyes buff; clypeus and mouth parts deep purple-brown. Pronotum green, with median carina and lower and hind margins of lateral lobes buff, and with a bright maroon mark on the shoulder just inside the hind margin. Abdomen green, with a median buff stripe bounded on either side by a row of small black dots; hind margins of tergites buffish. Forelegs brown-purple with a tinge of green, especially on the tibiae; middle legs green with a tinge of brown, especially on the femora, and the tarsi brown-purple. Elytra about twice as long as their width at the middle, lower margin nearly straight, upper margin curved; green with a tinge of purple and with the lower margin pale. Hind femora green, except in the internal and external upper areas, which are brownish.

Upper external, upper internal, and lower external carinae with a number of black dots, which are of the nature of obtuse teeth, and are most pronounced on the upper external carina. Hind tibiae green at the very base, red-purple in the rest, with the tarsi purplish tinged with green. Sternum deep brown-purple, under side of abdomen pale brown.

Measurements :

	Male.	Female.
	mm.	mm.
Body	10·5	23·0
Pronotum	3·2	6·0
Elytron	1·5	2·5
Hind femur	8·0	12·5
Antenna	5·0	6·0

Described from 13 males, 7 mature females, and 5 female nymphs; the Type and Allotype from the Cape Peninsula, Cape Province, 1930 (K. Key); the other male paratypes from the Cape Peninsula, 1 female paratype from near Hermanus, January 1931; the rest from Cape Peninsula, 1930; 2 nymphs from Paarl Road, January 1931; and 3 nymphs from Cape Peninsula, 1928-30. (All collected by the author.)

The species is fairly constant in its characters, the chief differences in the males being the degree of invasion by purple-brown, none of the male paratypes having any on the face, though all have it on the under side. The female from near Hermanus is distinctly smaller than the other mature females, but it is only recently mature, the abdomen being very contracted and shrunken. It also differs to some extent in the markings, these being dirty white, and the median stripe on the pronotum being present only near the centre.

PYRGOMORPHINAE.

Genus PYRGOMORPHELLA Bolivar.

(Bol. Soc. Esp. Hist. Nat., iv, p. 457, 1904.)

The genus *Pyrgomorphella* was founded by Bolivar in 1904, to include the species *Pyrgomorpha granosa* Stål, from Beyrout, and *Pyrgomorpha serbica* Brunn., from Serbia, as well as three new species from Africa and Madagascar. Since that date no further species have been described. The material before me includes five very distinct new species, all from Africa, bringing the total number of known species up to ten. The subjoined key enables these species to be readily separated. Of the earlier species, I have examined the Type and female paratype of *P. serbica* and a good series of *P. granosa* from Jerusalem (Brit. Mus. Coll.), but as regards Bolivar's three species I have had to rely, in compiling the key, upon his own key and descriptions. *P. sphenarioides* is included, although as a completely apterous insect it should perhaps be placed in a separate genus.

Key to the Species.

- 1. Apterous *P. sphenarioides* Bol.
- 1.1 Brachypterous.
 - 2. Elytra hardly exceeding anterior margin of metanotum.
 - 3. Elytra rounded apically *P. madecassa* Bol.
 - 3.3. Elytra acuminate apically *P. carinata* Bol.

2.2. Elytra extending over the whole of the metanotum or beyond.

3. Definite tympanum absent.

4. Elytra dorsal, the inner margins overlapping.

5. Elytra about twice as long as their maximal width, covering about half the first abdominal segment. Hind margin of pronotum not excised *P. rugosa* sp. n.

4.4. Elytra dorso-lateral, well separated.

5. Elytra about twice as long as their maximal width, just covering the metanotum, separated at the base by a distance subequal to their length. Hind margin of pronotum widely angulately excised, not quite reaching the metanotum. Wings absent

P. capensis sp. n.

5.5. Elytra less than twice as long as their maximal width, covering part of the first abdominal segment, separated at the base by a distance equal to about half their length. Hind margin of pronotum with small, sharp, median emargination—covering half the metanotum. Minute scarlet wings present

P. senecionicola sp. n.

3.3. Definite tympanum present.

4. Elytra narrow (about four times their maximal width), diverging outwards and downwards from their point of origin. Scarlet wings absent. Insects not green.

5. Front nearly straight. Anterior lateral carinae of pronotum running back to join the posterior lateral carinae. Hind margin of pronotum widely angulately excised

P. granosa Stål.

5.5. Front considerably concave. Anterior and posterior lateral carinae completely separate. Hind margin of pronotum with a very small median emargination . . . *P. variegata* sp. n.

4.4. Elytra broad (about twice their maximal width), growing straight backwards. Small scarlet wings present. Insects usually green.

5. Sulcus of frontal ridge widening considerably before meeting fastigium, and continuous on to it. Elytra covering part or whole of second abdominal segment, the lower margin rather sharply upturned about one-third from the apex. Hind margin of pronotum very slightly indented medianly. Pronotal carinae sharp *P. serbica* Brunn.

- 5.5. Sulcus of frontal ridge narrowing uniformly, extremely fine anterior to antennal bases. Elytra not extending on to second abdominal segment, lower margin not sharply upturned. Hind margin of pronotum uniformly convex. Pronotal carinae poorly developed

P. rubripennulis sp. n.

Pyrgomorphella capensis sp. n.

Male (Type) (Plate XVII, E and F).—Body slender, fusiform, finely punctuated, slightly hairy, especially on the under side.

Antennae subequal to head and pronotum, 16-jointed, the third joint subequal to the fourth, the last two joints indistinctly separated, the last joint straight on the outside, sloping or incurved on the inside. Section between fifth and sixth joints triangular, the upper inner and outer lower faces being flat and broad, the inner lower narrower and slightly rounded.

Head from above conical, about twice as long as its width at the occiput. Occiput with a fine median carina originating at the fastigium and reaching almost to the pronotum. Fastigium as long as broad or very slightly longer, varying somewhat in shape among individuals. The foveolae in contact along a length equal to the greatest width of a foveola, distinctly but not strongly marginated, and but little depressed. Head from the side slightly and evenly convex above, the face strongly sloping, slightly and evenly concave (though the degree of concavity varies slightly in individuals), bending upwards between the antennae to meet the fastigium. Frontal ridge straight, fine, even, sulcate throughout, very nearly reaching the clypeus. Median ocellus extremely minute, evanescent. Lateral facial carinae faint, extending to the base of the antennae. A small tubercle reminiscent of an ocellus situated between the lateral facial carina and the lower angle of the eye. The true lateral ocelli very small, each situated directly in front of the eye, between the upper anterior angle and the base of the antenna, and at the base of the margin of the fastigium. Eyes from above and in front prominent, from the side more or less oval, but the hind end more or less obliquely truncate. A single row of white callosities stretching from the eye to the lower margin of the lateral pronotal lobes.

Pronotum on top slightly convex. Anterior margin slightly emarginate, posterior margin strongly angulately emarginate. Hind margin not quite reaching the metanotum. Median carina fine but distinct, intersected by the second and third transverse sulci. The

first sulcus is represented only by a slight transverse furrow not reaching the lateral carinae. The second sulcus exactly bisects the median carina, and is slightly curved forwards at the point of intersection. Lateral carinae almost, though not entirely, obsolete, even in the prozona, and obliquely interrupted in the manner characteristic of the genus. They reach their greatest development in the metazona, where they are indicated by a line of two or more very small white callous tubercles, and a purplish mark. Lateral lobes with the inferior margin slightly sinuate, raised, and callous; anterior margin sloping forward, a very indistinct sulcus just behind it; hind angle about 90° , hind margin incurved; a broad callous rugose stripe immediately above the inferior margin, and continuous with the line of tubercles from the eye. The second sulcus distinct right to the callous stripe, the third sulcus not, though in some individuals it is. Surface of lateral lobes flat. Mesonotum just visible behind the pronotum. Metanotum resembling an abdominal tergum.

Mesosternal lobes subquadrate. Mesosternal interspace subquadrate, slightly wider than the lobes. Metasternal interspace not as wide as the mesosternal interspace, small, slightly transverse, oval, depressed. Prosternal tubercle blunt, broad.

Elytra about twice as long as their greatest width, the inner margins subparallel, separated at the base by a distance subequal to their length, with a few longitudinal rows of fine pits, just covering the metanotum. Wings absent.

Abdomen with a low dorso-median carina, obsolescent in places. Tympanum absent.

Fore and middle tibiae with outer and inner spines. Hind femora with the upper outer carina and the oblique carinae of the outer area not very strongly developed. Hind tibiae with 8-9 outer and 10 inner spines (11 in two male paratypes). A small apical outer and a large apical inner spine present.

General colour yellow-green. Antennae (except the two basal joints, which are green) and apex of fastigium purple-brown. Eyes pale brown. Row of callosities from eye, white. Pro- and mesonotum with a faint purple-brown line along the median carina, and continued along the abdomen, widening in the first abdominal tergum. Lower margin of pronotal lobes with a white band surmounted by a fine dark line. Hind portions of lateral carina with white callosities bordered below by a fine dark line. Under side pale. Fore and middle legs brownish. Sides of abdomen with a black

spot on the anterior margin of each segment. Hind femora green, the knees pink at the apex. Hind tibia blue-green, the apex and the feet purplish.

Female (Allotype).—Larger than the male, body more fusiform. Antennae and eyes relatively smaller. Lateral facial carina further from the eye than in the male owing to the smaller size of the eye. Line of callosities from the eye, and also the callous border to the lateral pronotal lobes, less well developed than in the male. Median pronotal carina with a fine sulcus. Elytra separated at the base by a distance greater than the length of an elytron. Mesosternal interspace rectangular, transverse, about twice as wide as long. Metasternal interspace elongated transversely, about four times as wide as long, equal in width to the mesosternal interspace. Genital valves slender, gently curved, the upper pair roughly serrate in the basal half. Hind tibia with 10 outer and 10–11 inner spines. (In other paratypes there are 9 outer and 10–11 inner spines.) Both outer and inner apical spines present, the former small.

General coloration brown. Antennae purple-brown. Head dark brown. Line of callosities below the eye and on the pronotal lobes less vividly white than in the male. Abdomen brown with a dark brown stripe on the sides, especially in front. Under side pale. Fore and middle legs dark brown. Hind femora more or less mottled with brown and dark brown. Hind tibiae almost black apically.

Measurements :

	Male.	Female.
	mm.	mm.
Body	11.25	15.7
Pronotum	2.0	3.0
Hind femur	6.5	8.0
Antenna	4.75	5.0
Head	2.5	3.0

Described from 4 males and 16 females from the Cape Flats, Cape Peninsula (Key, December 1930). The colour pattern exhibited by the Type apparently occurs only among the males, though other patterns are equally common. Both among males and females, however, coloration is very variable, ranging from pale grey, through all shades of grey and brown, to grey-green and blue-green. All the specimens were collected from a mass of low-growing silvery-leaved herbs of the family Compositae, which presumably forms their food-supply.

Pyrgomorphella senecionicola sp. n.

Larger than the previous species, and differing from it mainly in the pronotum from above, especially the posterior margin, the elytra, and the typical female coloration.

Male (Type) (Plate XVII, D and G).—Body fusiform, less slender and slightly more rugulose than in the previous species, slightly hairy.

Antennae subequal to head and pronotum, 16-jointed, the third joint much longer than the fourth, but showing traces of division (more pronounced in a few of the paratypes), the last two joints indistinctly separated, the last joint straight on the outside, sloping on the inside, not so pointed as in *P. capensis*. Section between fourth and fifth joints triangular, the upper inner and lower outer faces being flat and broad, the lower inner narrower and slightly rounded.

Head from above conical, very nearly twice as long as its width at the occiput. Occiput with a fine median carina originating at the fastigium and reaching the pronotum. Occiput somewhat rugose, the rugosities tending to become transverse on the vertex. Fastigium as long as broad, varying somewhat in shape among individuals. The foveolae in contact along a length equal to the greatest width of a foveola, more or less distinctly, but not strongly marginated, and but little depressed. Head from the side slightly and evenly convex above, the face strongly sloping, slightly and evenly concave, bending slightly upwards to meet the fastigium. Frontal ridge fine, straight, even, sulcate throughout, very nearly reaching the clypeus. Median ocellus small, but not as degenerate as in *P. capensis*. Lateral facial carinae faint, extending to the base of the antennae. A small tubercle reminiscent of an ocellus situated between the lateral facial carina and the lower angle of the eye. The true lateral ocelli each very small, situated directly in front of the eye, between the upper anterior angle and the base of the antenna, and at the base of the margin of the fastigium. Eyes from above and in front prominent, from the side more or less oval, but the hind end more or less obliquely truncate. A single row of white callosities stretching from the eye to the lower margin of the lateral pronotal lobes.

Pronotum on top slightly convex. Anterior margin slightly emarginate, posterior margin in general contour slightly convex, but with a small, sharp, median emargination. Hind margin covering half the metanotum. Median carina very faint, but discernible,

intersected by the second and third transverse sulci. The first sulcus is represented only by a slight transverse furrow not reaching the lateral carinae. The second transverse sulcus is situated slightly but definitely in front of the mid-point of the median carinae, and bends slightly forwards at the point of intersection. Lateral carinae almost, though not entirely, absent in the prozona, and obliquely interrupted in the manner characteristic of the genus. In the metazona they are indicated by a line of two or more white callous tubercles and a purplish mark. The two lines of tubercles diverge slightly forwards. Lateral lobes with the surface very slightly impressed; the inferior margin slightly sinuate, raised, and callous; anterior margin sloping forward, a very indistinct sulcus just behind it, hind angle about 90° , hind margin incurved. A callous rugose stripe, narrower than in the previous species, immediately above the inferior margin and continuous with the line of tubercles from the eye. Both transverse sulci distinct down to this stripe.

Mesonotum not visible behind pronotum; hind half of metanotum visible only.

Mesosternal lobes with the inner hind angle rounded, somewhat less than 90° , the interspace slightly transverse, trapezoidal, about as wide as the lobes. Metasternal interspace oval, transverse, about twice as wide as long, nearly as wide as the mesosternal interspace.

Elytra larger than in *P. capensis*, less than twice as long as their greatest width, the inner margins converging towards the base, separated at the base by a distance about half their length, with many longitudinal rows of pits, covering part of the first abdominal segment. Minute scarlet wings, incapable of being expanded, present beneath the elytral pads.

Abdomen with a low dorso-median carina, callous in some parts, obsolescent in others. Tympanum absent.

Fore and middle tibiae with inner and outer spines. Hind femora with the oblique carinae on the externo-median area not strongly developed. Hind tibiae with 8-9 outer and 11 inner spines (8-10 outer and 9-11 inner in the male paratypes). A small apical outer and a large apical inner spine present.

General coloration green and brown. Antennae purple-brown except the two basal joints, which are green. Head brownish on the vertex, green elsewhere. Eyes brown. Lateral row of tubercles from the eye yellowish white. Pronotum pale brown on top, brownish green on the lateral lobes. Pleura greenish brown. Dorsal surface of abdomen brown, the apex and sides greenish brown. Fore and

middle legs brown. Hind femur green, the apex of the knee brown. Hind tibia blue-green for about the basal two-thirds, the apical third and the tarsus pink. Under side pale brown.

Female (Allotype).—Larger than the male, the body more fusiform, more rugose. Antennae and eyes relatively smaller than in the male. Antennae 15-jointed (16-jointed in one paratype). Head from above relatively shorter, the median carina less distinct than in the male and much less distinct than in the female *P. capensis*. Median ocellus obsolete (present in the other paratypes). Lateral facial carina further from the eye than in the male. The row of callous tubercles below the eye narrower, less distinct, the tubercles reduced in number and in size, hardly larger than the other tubercles on the head. The stripe on the pronotal lobe similarly reduced. Median carina of pronotum obsolete except in the hindmost part of the metazona, where it is just discernible. Lateral pronotal carina very blunt—really only an angular bend in the plane of the pronotum—and with not more than one extremely small white tubercle (in some paratypes tubercles are quite absent). Surface of lateral lobes slightly more impressed. Mesosternal interspace rectangular, about twice as wide as long, and twice as wide as the lobes. Metasternal interspace strongly transverse, about five times as wide as long, and equal in width to the mesosternal interspace. Elytra separated at the base by a distance slightly less than the length of an elytron. Genital valves more robust than in *P. capensis*, strongly curved, the upper pair roughly serrate in the basal half. Hind tibia with 10 outer and 11 inner spines (8–9 outer and 10–11 inner among other paratypes). Both outer and inner apical spines present.

Antennae pale pinkish. Eyes pale brown. Callous stripe below eye and on inferior margin of pronotal lobe indistinct, yellowish white. The rest uniformly green.

Measurements :

	Male.	Female.
	mm.	mms.
Body	13.0	19.25
Pronotum	2.8	4.2
Hind femur	7.5	9.2
Antenna	5.2	5.5
Head	2.7	3.25

Described from 7 males and 5 females, all from near Hermanus, in the Caledon Division, Cape Province (Key, January 1931). The males all possess essentially the same coloration, differing only in the extent

to which brown invades green, while the pink apex to the hind tibia may be absent. All the females possess the same coloration except one, which is uniformly buff. No approach is made to the degree of variability exhibited in both males and females of *P. capensis*.

Pyrgomorphella rubripennulis sp. n.

Larger than either of the last two species, and differing from them mainly in the pronotum and elytra, and in the possession of a tympanum.

Male (Type) (Plate XVII, C and H).—Body fusiform, slightly hairy, more rugulose than in the previous species.

Antennae subequal to head and pronotum together. Third and fourth joints imperfectly separated (quite separate in some paratypes). Counting these joints as separate there are 17 joints in all. The last joint with the outer margin straight, the inner sloping. Section between fifth and sixth joints more or less triangular, the one long side (representing the upper inner face) straight, the other long side (representing the lower outer face) curved, and the short side somewhat curved.

Head from above conical, less than twice as long as its width at the occiput. Occiput with a fine median carina originating at the fastigium and reaching the pronotum. Occiput somewhat rugose, more so than in the preceding species, the rugosities tending to become transverse on the vertex. Fastigium as long as broad, the apex more rounded than in the previous species (though in one paratype it is indistinguishable from *P. senecionicola*). The foveolae in contact along a length equal to the greatest width of a foveola, clearly marginated, little depressed. Head from the side very slightly convex—almost straight—on top, the face strongly sloping, slightly and evenly concave, bending slightly upwards to meet the fastigium. Frontal ridge straight, fine, even, sulcate throughout, very nearly reaching the clypeus. Median ocellus small. Lateral facial carinae clearly marked, extending to the base of the antennae. A small tubercle reminiscent of an ocellus situated between the lateral facial carina and the lower angle of the eye. The lateral ocelli small, situated directly in front of the eye between the upper anterior angle and the base of the antenna, and at the base of the margin of the fastigium. Eyes from above and in front prominent, from the side more or less oval, but the hind margin more or less obliquely truncate. A band of callous tubercles which may contain more than one row stretching from the eye to the lower margin of the pronotal lobes.

Pronotum from above slightly convex. Anterior margin nearly straight, posterior margin very obtusely angulate, the apex rounded, without any emargination (one male paratype has a slight median indentation). Hind margin covering about half the metanotum. Median carina very faint, in some places obsolescent, in others very finely sulcate, intersected by the second and third transverse sulci. The first sulcus is represented only by a slight transverse furrow not reaching the lateral carinae. The second transverse sulcus is situated in front of the middle, and has a forward bend in the middle. Lateral carinae very blunt and poorly developed, being little more than angular bends in the surface plane of the pronotum; interrupted obliquely in the manner characteristic of the genus; the hind portion with only one small white tubercle (two in some paratypes). Lateral lobes with the surface very slightly impressed, the inferior margin sinuate, raised, and callous, anterior margin sloping forward, a very indistinct sulcus just behind it, hind angle about 90° , hind margin incurved. A callous band of tubercles immediately above the inferior margin and continuous with the band of tubercles from the eye. Transverse sulci extending down to this band.

Mesonotum not visible behind pronotum. Hind part of metanotum only visible.

Mesosternal lobes with the inner angle rounded, somewhat less than 90° , the interspace trapezoidal, not transverse, about as wide as the lobes. Metasternal interspace oval, transverse, about twice as wide as long, nearly as wide as the mesosternal interspace.

Elytra larger than in the previous species, about twice as long as their greatest width, the inner margins almost in contact at the base; with rudimentary longitudinal veins separated by rows of pits, extending just beyond the hind margin of the first abdominal segment (in one paratype the elytra just fail to reach the hind margin). Elytra capable of being raised when the insect is disturbed to exhibit the minute scarlet wings, just capable of being expanded. Integument under and immediately around the wings (but covered by the elytra) scarlet.

Abdomen with a low dorso-median carina. The infero-apical part of the elytron covers a functional quadrant-shaped tympanum.

Fore and middle tibiae with outer and inner spines. Hind femora with the oblique carinae on the externo-median area not strongly developed. One hind tibia with 10 spines on the outside and 10 on the inside, and both apical spines present, the other with 8 outer spines, the apical one represented only by a small tubercle, and 11

inner spines (in the paratypes there are 9–10 outer spines and 10–11 inner; in one paratype there are 8 outer spines on both tibiae, the apical one in each case being only a small tubercle). When present, the outer apical spine is very small.

General coloration green invaded by purple-brown. Antennae dark purple-brown, except the basal two joints, which are somewhat greenish. Head on top mainly purple-brown, especially on the fastigium. Rest of head buff-green. Eyes pale brown. Pronotum purple-brown in the prozona, brownish green in the metazona. Lateral lobes of pronotum brownish green. The stripe below the eye and on the lower margin of the pronotum yellow. Pleura, abdomen, and fore and middle legs brownish green. Elytra purple-brown on top, greenish near the outer margin. Hind legs dull green, apex of knees pinkish. Under side buff-green.

Female (Allotype). — Larger than the male, the body more fusiform.

Antennae relatively slightly shorter than in the male, more ensiform at the base, and in that region also slightly serrate. Third and fourth joints imperfectly separated. Counting them as separate there are 18 joints in all, the last two imperfectly separated. (In some paratypes the third and fourth joints are quite separate, in others quite united, so that the antenna has only 17 joints.) Head from above relatively shorter than the male. Lateral facial carinae further separated from the eyes than in the male on account of the relatively smaller size of the eyes. Row of tubercles below the eye less well developed than in the male; the band of the inferior margin of the pronotal lobes nothing more than a yellow stripe, because the tubercles are no larger than those on the rest of the pronotum. Pronotum from above more convex than in the male. Hind margins very slightly incurved before they meet at the rounded apex. Lateral pronotal carina obsolescent in the prozona, where it is indicated by a row of extremely small callous tubercles (better developed in some female paratypes), similar to the male in the metazona. Surface of the lateral lobes slightly more impressed than in the male. Mesosternal lobes with the inner hind angle rounded, 90° (less than 90° in some paratypes), the interspace rectangular (trapezoidal in some paratypes), transverse, nearly twice as wide as the lobes and as its own length. Metasternal interspace transverse, about 6–8 times as wide as long, equal in width to the mesosternal interspace. Elytra more widely separated at the base than in the male, but not separated by a distance greater than half the width of an elytron at the base.

Hind tibiae with 10 outer and 11 inner spines, both apical spines present, but the outer one very small. (In other female paratypes there are 8-10 outer and 10-11 inner spines.) Genital valves more robust than in the two previous species, the upper pair more abruptly curved at the apex.

General coloration uniformly green. Antennae, eyes, and metanotum grey. Apex of fastigium and fore and middle legs with a trace of grey. Sides of abdomen with the lower margins of the tergites buff. Subocular and lateral pronotal stripes yellow. Infrero-external carina of hind femur yellow.

Measurements :

	Male.	Female.
	mm.	mm.
Body	15.5	21.5
Pronotum	4.0	5.25
Hind femur	9.25	11.0
Antenna	6.25	6.8
Head	2.8	4.0

Described from 7 males and 6 females, all from Grahamstown, Eastern Cape Province (Key, May 1931). Some of the specimens are somewhat discoloured. The males vary in the extent to which purple-brown has invaded green. One male paratype is of exactly the same colour as the allotype, while one is uniformly brown. The females vary to a less extent. Both sexes vary considerably in size, shape of fastigium, and degree of concavity of face. The external lower carina of the hind femur may be either yellow (as described for the female allotype) or normal in both sexes.

The three species *capensis*, *senecionicola*, and *rubripennulis* form (in the order mentioned) an interesting series which shows a steady gradation from one species to the next in several characters. The direction of the gradation corresponds with the distribution of the species geographically. Thus, starting with *capensis* at Cape Town, and passing east along the coast, we come to *senecionicola* at Hermanus, about 40 miles away as the crow flies, and then to *rubripennulis* at Grahamstown, a further 430 miles east. The following characters show a regular increase from *capensis* to *rubripennulis*: size, relative length of elytra, degree of development of wings and tympanum; and the degree of emargination of the hind margin of the pronotum shows a regular decrease.

Pyrgomorphella variegata sp. n.

Male (Type) (Plate XVII, A and L).—Body fusiform, rugulose, very slightly hairy on the legs and under side.

Antennae in length subequal to head and pronotum together, 17-jointed, the third joint not perfectly separated from the fourth, the last joint straight on the outside, sloping on the inside; somewhat flattened and serrate, especially near the base, triangular in section, the long sides of the triangle representing the upper inner and lower outer faces.

Head from above conical, about twice as long as its width at the occiput. Occiput with a fine median carina, originating at the fastigium and reaching the pronotum. Fastigium slightly longer than wide, slightly convex, the apex widely rounded. Foveolae in contact along a length equal to the greatest width of a foveola, not impressed. The carinae which, at the base, form the inner margin of the foveolae are not in contact until the very apex of the fastigium, owing to the fact that they invade the foveolae and no longer form the true inner margins of the foveolae. Head from the side evenly convex above, the face strongly sloping, considerably concave. Frontal ridge narrow, very indistinct in the lower part, not quite reaching the clypeus, sulcate throughout, narrowing gradually towards the fastigium. Median ocellus minute. Lateral ocelli small, situated just in front of the eye, and between the eye and the base of the antenna. Lateral facial carina faint in the middle, more distinct above and below. A small low tubercle reminiscent of an ocellus situated between the lateral carina and the lower angle of the eye. Eyes from above and in front prominent, from the side more or less oval, but the hind end more or less obliquely truncate. A fairly broad band of more than one row of raised callosities stretching from below the eye to the base of the lateral pronotal lobe. Surface of the gena above and below the subocular stripe smooth and shiny.

Pronotum on top more or less flat. Anterior margin nearly straight, posterior margin slightly convex, with a slight median emargination. Hind margin not quite reaching the metanotum. Median carina low and fine but distinct, intersected by three transverse sulci. The first is poorly developed and only just reaches the lateral pronotal carinae; the second is well developed and cuts deeply into the lateral carinae; the third is also well developed, but cuts the lateral carinae less deeply. The second sulcus cuts the median carina slightly in front of the mid-point, and is slightly bent forward at the point of

intersection. The lateral carinae are quite well developed, and obliquely interrupted. The anterior portions of the carinae do not extend further back than the second transverse sulcus, and diverge strongly forwards. The posterior portions diverge forwards at an angle subequal to that of the anterior portions, and extend obliquely downwards and forwards into the lateral lobes as far as the anterior margin, though they are less well developed at the very front. At the second sulcus the anterior portion of the lateral carina and the posterior portion are separated, along the line of the sulcus, by a distance subequal to the distance between the second and third sulci. In front of the second sulcus, running right between the anterior and produced posterior portions of the lateral carina, is another short low carina formed by a row of tubercles; this carina bends upwards in front to meet the anterior portion of the lateral carina. Lateral pronotal lobes with the lower margin somewhat sinuate, raised, and callous; the anterior margin sloping forward, the posterior margin incurved; hind angle about 90° , rounded. Surface of the lateral lobes impressed. A broad, raised, yellowish, callous stripe traversed by irregular sulci extends just above the lower margin and is continuous with the subocular stripe; it is less well developed in the region behind the third sulcus. Shortly behind the anterior margin of the lateral lobe is a transverse sulcus. The second and third sulci reach the callous stripe. The surface of the lobe in front of the third sulcus and above the callous stripe is smooth and shiny, that behind the third sulcus lightly rugose like the disk.

Mesonotum just visible behind the pronotum. Metanotum smoother than the abdominal segments. Mesosternal lobes and interspace subquadrate and subequal. Inner hind angles of mesosternal lobes not rounded. Metasternal interspace more or less oval, but the anterior margin straight; about twice as wide as long, not quite as wide as the mesosternal interspace.

Elytra 3-4 times as long as their maximal width, diverging outwards and downwards from their point of origin, the outer margin nearly straight, the inner slightly curved, the apex rounded; just failing to reach the hind margin of the first abdominal segment, separated at the base by a distance subequal to their maximal width.

Abdomen without a dorso-median carina. A small tympanum present just underneath the apex of the elytron.

Fore and middle tibiae with outer and inner spines. One hind leg missing, the other detached. Hind femur with the upper outer carina and the oblique carinae on the externo-median area well

developed. Hind tibia with 8 outer and 11 inner spines. An apical inner, but no apical outer spine present.

General coloration brown. The Type is clearly a good deal faded. Antennae grey, somewhat paler near the outer margin, and the distal margin of each joint pale, so that the antenna appears striated. Basal three or four joints brown. Head brown, somewhat darker along the hind part of the median carina, and above the subocular stripe, which is yellowish. Eyes reddish brown.

Pronotum discoloured on the lobes and the anterior part of the disk; brown, darker on the shiny part above the stripe on the inferior margin of the lobes. The stripe discoloured, probably yellowish in life. The pleura are very characteristically coloured. Beginning at the suture separating the anterior half of the mesopleuron from the mesosternum, and working backwards, we have first a dark brown region; at about the lower hind angle of the pronotal lobe there arises a pale band running parallel to the pleural sutures, to the coxa; behind this comes a dark band, and behind that, just in front of the mesopleural suture, another pale band; the hind half of the mesopleuron—that is, behind the afore-mentioned suture—is mainly dark; then comes the suture separating the meso- and metapleura, and behind that the front of the metapleuron, which is pale, then the metapleural suture, followed by the hind half of the metapleuron, which is dark save for the infero-posterior process, which is pale.

Abdomen brown with a narrow dorso-median pale stripe. The sides with a pale stripe along the lower margins of the terga, surmounted on each segment by a small dark mark. Elytra and legs brown.

Female (Allotype).—Larger than the male, the body more fusiform, more rugose.

Antennae with the joints relatively longer than in the male, especially the last one, less flattened and serrate, the one 15- the other 16-jointed.

Head from above less than twice as long as its width at the occiput. Median carina very faint. Foveolae slightly impressed. A slight transverse depression on the vertex shortly behind the apex of the eyes. Head in profile nearly straight above. Median ocellus not as small, nor the frontal ridge so indistinct below the ocellus, as in the male. Eyes relatively smaller than in the male. Pronotum on top with a few slight depressions, especially one on either side of the metazona. Hind margin covering part of the metanotum. Transverse sulci less well developed than in the male. Lateral pronotal

carinae subparallel. Mesonotum not visible behind the pronotum. Mesosternal lobes and interspace trapezoidal, the inner hind angles of the lobes considerably less than 90° , the interspace not quite twice as wide as long. Metasternal interspace as wide as the mesosternal, about four times as wide as long. Elytra not quite as attenuate as in the male, about three times as long as their maximal width, just surpassing the hind margin of the first abdominal segment, separated at the base by a distance nearly twice their maximal width. Genital valves strongly curved, black-tipped, the upper pair coarsely serrate above, slightly hairy below.

Coloration essentially similar to the male, but unfaded. Antennae purple-brown, striated as in the male. Head pale in front. Subocular stripe yellowish, bordered above and below by a very dark, nearly black band. Head and pronotum on top purple-brown, but the heads of the numerous small rugosities yellowish, so that a paler brown effect is produced. The dorsal surface of the abdomen is darker, because there are fewer rugosities. A very dark dorso-medial stripe on the head. Eyes purple-brown. Shiny part of lateral pronotal lobe deep purple-brown. Pleura as in male, except that the lower anterior part of the metapleuron is dark purple-brown. Under side mottled purple-brown and yellowish. Fore and middle legs purple-brown. Hind legs missing.

Measurements :

	Male.	Female.
	mm.	mm.
Body	19.5	28.0
Pronotum	4.0	5.5
Hind femur	9.5	..
Antenna	8.25
Head	3.8	3.8

Described from one male (Type) from Narosura, Masai Reserve, Kenya (Capt. A. O. Luckman, February 1914, 6500 feet), and one female from El donyo eb Viru, Kenya (C. S. Betton, 1902, May-July). Though the Type and allotype differ in several points, especially the top of the head, these are almost certainly sexual differences. In any case, the shape of the head varies considerably among individuals in the other species.

Pyrgomorphella rugosa sp. n.

Male (Type) (Plate XVII, B and K).—Body slightly hairy.

Antennae slightly shorter than head and pronotum together, 15-jointed, the third joint imperfectly separated from the fourth

and itself showing a very faint sign of a dividing line, the last joint straight on the outside, curved on the inside; slightly wider and flattened at the base, evenly tapering, triangular in section, the long sides of the triangle representing the upper inner and lower outer faces.

Head from above slightly conical, about twice as long as its width at the occiput. Occiput with a fine, well-raised, median carina originating a short distance behind the fastigium, and obsolete shortly behind the eyes. Fastigium about as long as wide, well margined, the apex widely rounded; foveolae in contact along a length equal to the greatest width of a foveola, slightly impressed. Vertex with a few irregular rugosities. Head in profile strongly convex above, the bend being mainly between the eyes; the face strongly sloping, irregularly concave, suddenly impressed a short distance below the ocellus. Frontal ridge wider than in all the previous species, distinctly margined throughout, not quite reaching the clypeus, widened at the ocellus, suddenly depressed shortly below the ocellus, strongly compressed between and above the antennae, but scalate throughout. Median and lateral ocelli well developed. Lateral ocelli situated level with the front of the eye, and between the eye and the base of the antenna. Lateral facial carinae distinct throughout, well developed in the region of the eyes, less so lower down. A small tubercle reminiscent of an ocellus situated between the lateral carina and the lower angle of the eye. Face and gena with a few small rugosities. Eyes from above and in front very prominent, from the side nearly circular. No subocular stripe.

Pronotum on top slightly convex, coarsely rugose. Anterior margin slightly and widely emarginate. Posterior margin slightly convex, not emarginate, not reaching the hind margin of the mesonotum. Median carina well raised, but, like all the carinae, widely interrupted and broken up by the transverse sulci, including the first. The first sulcus is very faint and stretches only as far as the front portions of the lateral carinae. The second and third sulci are well developed, widely interrupting the median and lateral carinae. Both bend forward somewhat at their points of intersection with the median carina. The second sulcus intersects the median carina at its mid-point or very slightly in front. The lateral carinae are much broken up, both by the transverse sulci and apart from them, and their course is further obscured by the presence of other rugosities and short carinae on the pronotum and its lobes.

Each lateral carina is obliquely divided into an interior and posterior portion. The anterior portions can be traced back as far as the second transverse sulcus, and diverge forwards. The posterior portions are most clearly indicated in the metazona; they are produced forwards and downwards on to the lateral lobes, becoming obsolescent towards the anterior margin. Lateral pronotal lobes with the surface slightly impressed, the lower margin strongly sinuate, raised, and callous; the anterior margin sloping forward, the posterior margin incurved; hind angle obliquely truncate. Shortly behind the anterior margin is an indistinct short sulcus. The second transverse sulcus extends on to the lateral lobe and nearly reaches the lower margin; the third sulcus does not extend so far. Surface of lobe strongly punctured in the metazona.

Mesosternal interspace trapezoidal, wider than the lobes. Inner hind angles of mesosternal lobes rounded, less than 90° . Metasternal interspace somewhat depressed, oval, slightly wider than long, narrower than the mesosternal interspace.

Elytra more or less oval, about twice as long as their maximal width, the outer margin straight for the basal two-thirds, bending inwards for the apical third; inner margins straight except at the very base, overlapping right to the apex, but leaving a small triangular portion of the mesonotum showing between them at the very base. Elytra covering the whole of the metanotum, no part of which is visible, and half the first abdominal segment.

Abdomen with a low dorso-median carina. Tympanum indicated only by a small depression behind the first abdominal spiracle.

Anterior and middle femora well developed, the tibiae spined. Hind legs missing.

General coloration grey-brown, the apices of the larger rugosities dark. Antennae grey, in the basal part paler at the margins than in the centre; there are also paler regions at about joints 9-11 and joint 14. Foveolae of fastigium also greyish. Eyes reddish brown with dark streaks. Face pale brown. Frontal ridge, below the ocellus, at the point where it is suddenly depressed, with the margins black; margins below that point also black in parts. Lower margin of pronotal lobes with a broad pale stripe interrupted at the second sulcus. Pronotal lobes darkish except in the metazona. Abdomen dark in the region of the first spiracle, the lower margin of each tergite with a slightly oblique black mark. Under side buff.

Measurements:

	Male
	mm.
Body	16.4
Pronotum	3.0
Hind femur
Antenna	5.0
Head	3.0

Described from one male only in the South African Museum's collection, from Dunbrody, Uitenhage Division, March 1912.

EXPLANATION OF PLATES XIII-XVII.

- XIII. *Betiscoides meridionalis* Sjöst.
- XIV. *Betiscoides sjostedti* sp. n.
- XV. *Betiscoides parva* sp. n.
- XVI. *Frontifissia elegans* sp. n.
- XVII. *Pyrgomorphella capensis* sp. n., figs. E, F.
- ,, *senecionicola* sp. n., figs. D, G.
- ,, *rubripennulis* sp. n., figs. C, H.
- ,, *variegata* sp. n., figs. A, L.
- ,, *rugosa* sp. n., figs. B, K.